E-Gov Electronic Records Management Initiative

Analysis of Lessons Learned Guidance Document for Enterprise-wide ERM Projects

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Analysis of Lessons Learned Guidance Document

for Enterprise-wide ERM Projects

Electronic records management (ERM) systems provide mechanisms to manage agency records, as required by law, throughout their life cycle (from creation, through maintenance and use, and ultimate disposition). Deploying an enterprise-wide system poses many challenges, but the benefits to the agency, its staff, and users far outweigh the difficulties faced by ERM project teams. Careful planning and a degree of flexibility on the part of agency staff can ease the transition as processes are modified to accommodate the new system.

This document analyzes the experience of managers who have been involved in ERM projects, summarizing the knowledge accumulated with regard to factors contributing to successful implementation and barriers that impede progress on enterprise-wide installation. The guidance document is composed of six sections, followed by an Appendix:

1. Introduction

The strategic focus of the Office of Management and Budget's (OMB) Electronic Government (E-Gov) Initiatives is to utilize commercial best practices in key government operations. The National Archives and Records Administration (NARA) is the managing partner for the ERM E-Gov Initiative. NARA's ERM Initiative provides a policy framework and guidance for electronic records management applicable government-wide. The Initiative is intended to promote effective management and access to federal agency information in support of accelerated decision making. The project will provide federal agencies guidance in managing their electronic records and enable agencies to transfer electronic records to NARA.

This guidance document is one of a suite of documents to be produced under NARA's ERM Initiative that, when taken together, form the structural support for ensuring a level of uniform maturity in both the federal government's management of its electronic records and its ability to transfer electronic records to NARA.

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This is the sixth document to be produced under the Enterprise-wide ERM Issue Area, providing guidance on developing agency-specific functional requirements for ERM systems to aid in the evaluation of COTS products.

- The first document provides guidance for *Coordinating the Evaluation of Capital Planning and Investment Control (CPIC) Proposals for ERM Applications* (http://www.archives.gov/records-mgmt/policy/cpic-guidance.html).
- *Electronic Records Management Guidance on Methodology for Determining Agency-unique Requirements* (http://www.archives.gov/records-mgmt/policy/requirements-guidance.html) offers a process for identifying potential ERM system requirements that are not included in the Design Criteria Standard for Electronic Records Management Applications, DOD 5015.2-STD (v.2).
- *Guidance for Evaluating Commercial Off-the-Shelf (COTS) Electronic Records Management (ERM)* (http://www.archives.gov/records-mgmt/policy/cots-eval-guidance.html) *Applications* summarizes the Environmental Protection Agency's (EPA) experience determining agency-wide Electronic Records and Document Management System (ERDMS) requirements and identifying the COTS products that would best meet the needs of agency staff for both Electronic Document Management (EDM) and Electronic Records Management (ERM) functionality.
- *Guidance for Building an Effective Enterprise-wide Electronic Records Management (ERM) Governance Structure* defines governance and its importance to the success of IT, the purpose and function of that governance, how project-specific governance (such as those instituted for enterprise-wide ERM) fits within and alongside other established governance structures, and the risks attendant in the absence of good governance.
- *Guidance for Developing and Implementing an Enterprise-wide Electronic Records Management (ERM) Proof of Concept Pilot* applies the principles and "best practices" of IT project management to a proof of concept demonstration pilot for ERM whose purpose is to assess whether the solution should be deployed agency-wide.

The guidance documents are aimed at helping federal agencies understand the technology and policy issues associated with procuring and deploying an enterprise-wide ERM system.

2. Application of this Guidance Document

As agencies embark on enterprise-wide ERM initiatives, their understanding of how best to prepare federal agency staff for the transition, participate in the design and development of the ERM system, and continue to improve the system once deployed provide valuable knowledge that can help others speed the process and avoid some of the pitfalls encountered during other installations. This guidance presents lessons learned from a variety of ERM initiatives, with special emphasis on the criteria that makes an ERM deployment successful in federal agencies and the barriers likely to be encountered along the way.

The primary audiences for this document are federal agency staff involved with the planning or conduct of an ERM pilot project, including records managers, IT personnel, trainers, and end-user participants. It also will help vendors (whose systems are used in

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agency ERM installations) understand how they can better serve their clients, easing the process of enterprise-wide implementation.

3. Lessons Learned from ERM Project Implementation

This guidance document offers conclusions about the lessons learned during the planning, testing, and implementation phases of enterprise-wide ERM solutions. In order to better understand how and under what conditions enterprise-wide ERM projects thrive, the lessons learned from federal and state agency ERM project managers have been grouped into five categories:

Strategy Lessons revolve around the need to understand existing workflow and business needs for improvement; thorough project planning that envisions a phased approach to enterprise-wide ERM deployment; and aligning performance outcomes with the business vision and mission of your agency, including frequent communication regarding the ERM project and how it will advance the agency's goals and objectives.

Organization Lessons involve the process of readying agency staff for the change that will necessarily accompany the introduction of ERM. Agencies must understand how the ERM system will affect the work of its staff and a plan must be developed to ease the transition. In order to successfully implement any ERM system, agencies must staff the projects at appropriate levels and with the optimal mix of skill sets required for enterprise-wide deployment. How that is achieved will vary with the agency, depending upon its size, culture, interdependency of programs across multiple locations, and availability of staff.

Leadership. Success of an ERM project lies with involvement of a cross-section of individuals throughout the agency, including records managers, technologists, management, users, and a team that is capable of executing the project plan. Equally important is leadership from within the project team and sponsorship from senior management.

Technology. ERM solutions must meet the business needs of the agency while taking into account the ability of that agency to implement and maintain the system selected. Agencies with a larger IT staff will be able to deploy a more leading-edge solution than a smaller agency or one where there are many locations with few IT support staff available to assist. Remember, the ERM initiative is not about "the technology," but about process improvement for the lifecycle of electronic records, from creation to disposal (or permanent retention).

- Developing a modular strategy for a total solution that meets an agency's business needs for records and document management gives a project team more flexibility in phased project development and ERM implementation.
- Copying what works will save time and help you avoid the errors made by others. Look to the experiences others have had with a particular tool or process for implementing ERM in their agencies.

Training. Appropriate training of agency staff is an essential component of ERM project success. Acquiring an ERM solution is of no value to an agency unless staff use the system to create, manage, and retrieve electronic records. Trained staff are more comfortable using systems and use them more often and more effectively than those who do not receive adequate or timely training. Staff will require training not only on the individual system, but education concerning basic records management and the unique

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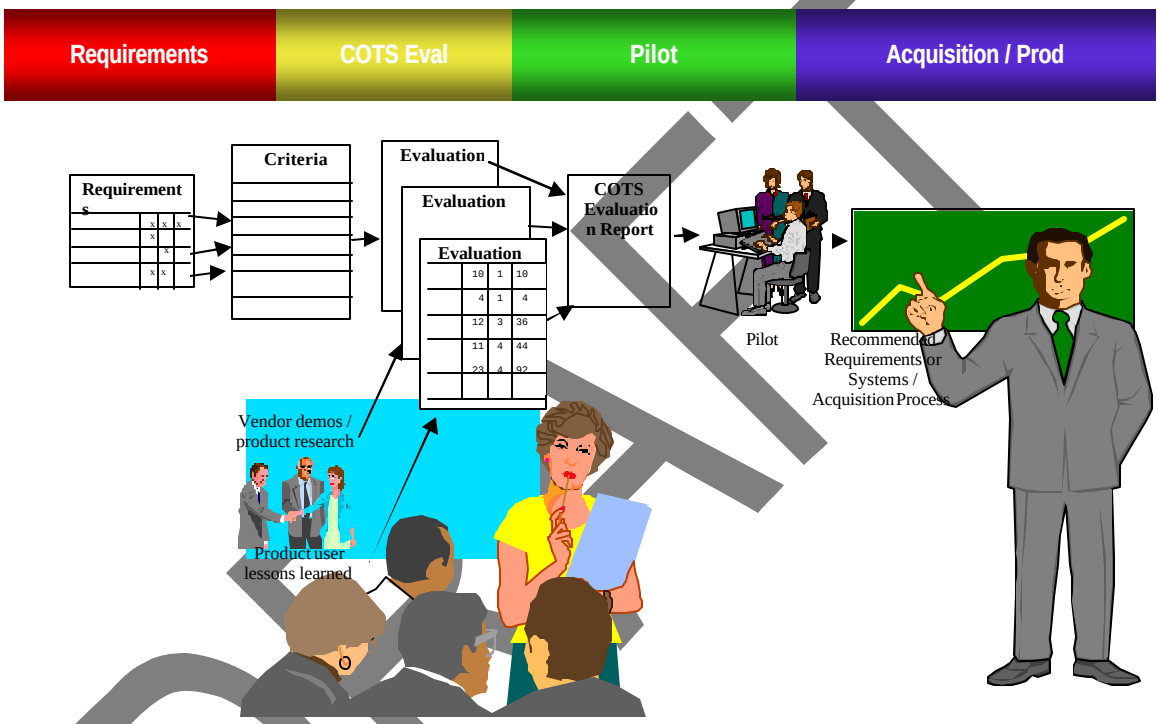
challenge of ERM The content of training offered at each stage of ERM implementation should be appropriate to the user and agencies should employ a variety of means for reinforcing what is learned through individualized follow-up.

This section reviews the distinct lessons learned at each stage of the process characterized in the previous five guidance documents comprising this series and as illustrated in **Figure 1, Overview of the ERM Development Process**.

Figure 1. Overview of the ERM Development Process



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3.1 Capital Planning and Investment Control (CPIC)

Enterprise-wide ERM projects are costly undertakings, requiring a commitment of time, labor, and money. Rigorous review within the CPIC process will validate your ERM project, ensuring that it meets the needs of the agency. This process will inform those charged with developing a plan for identifying requirements for the system, selecting the appropriate product, working with the vendor to make the tool a better fit for the agency, and testing the system prior to agency-wide deployment.

Recognizing that the goal is to introduce enterprise-wide ERM systems, there may be compelling business reasons for separately funding program-specific ERM systems. Administrators evaluating a portfolio of ERM-related projects will have to:

- Examine program-specific proposals to see if they overlap with the enterprise ERM goal
- Determine if office-specific ERM systems should be funded independently or integrated with an agency's enterprise-wide ERM system.

Additional general information concerning the CPIC process can be found by consulting *Coordinating the Evaluation of Capital Planning and Investment Control (CPIC) Proposals for ERM Applications* (http://www.archives.gov/records-mgmt/policy/cpic-guidance.html). The following sections describe CPIC-specific lessons learned from federal and state ERM system implementation projects. The lessons are summarized in **Figure 2**, The Do's and Don'ts of Capital Planning and Control (CPIC), below.

Strategy Lessons involve examining CPIC proposals for systems requiring ERM functionality, keeping in mind the goal of an enterprise ERM system.

Organization. Clearly state the problems that will be solved through an ERM solution. For example, "Business processes for managing records are too staff-dependent and it takes too long for staff to receive documents for action." This will help focus your search for an ERM system that will resolve problems identified as impeding the ability of agency staff to perform.

Leadership. Records officers should take the lead in evaluating an agency's CPIC proposals that contain ERM components or functionality, determining how an identified proposal supports, complements, or duplicates the agency solution.

Technology. In certain circumstances, agencies may want to continue funding legacy ERM systems (ongoing maintenance and upgrades), but apply standards that would enable them to be incorporated into an enterprise-wide system in the future. Doing so allows legacy ERM systems to continue to provide needed functionality until these systems can be integrated with or migrated to the enterprise-wide ERM system.

Training. Assuming that basic records management training is conducted at your agency, staff training at this stage should be targeted to an agency's need for ERM and the benefits the agency, staff, and users will derive from enterprise-wide solutions. Senior management may support records management, but not fully understand the complexity of an enterprise-wide ERM solution; this is an appropriate time to begin that education process.

Figure 2. The Do's and Don'ts of Capital Planning and Investment Control (CPIC)

	Do	Don't
Strategy	• Examine CPIC proposals for systems requiring ERM functionality	• Send mixed messages with regard to ERM. Have a consistent message concerning the importance of ERM delivered from senior management.
Organization	• Clearly state the problems that will be solved through an ERM solution • Assess the impact of an ERM system on existing business processes, RM policies, and procedures, identifying any practices that need correction	• Implement ERM without first identifying a compelling business need for the system (i.e., a problem that would be solved with the introduction of such a system)
Leadership	• Allow qualified records officers to assume a leadership role in evaluating an agency's CPIC	• Ignore elements of ERM within CPIC proposals

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	proposals that contain ERM components or functionality • Use the capital planning process to perform a rigorous review of your ERM project • Ensure sufficient resources to develop/modify existing RM policies, processes, and procedures	• Promise too much, too soon. Be honest about what can be accomplished within realistic timeframes and tell management and users when milestones are likely to be missed (and why).
Technology	• Consider how legacy systems should be funded (in terms of maintenance and upgrades) • Apply standards that will enable migration or integration into an enterprise-wide system in the future	• Ignore legacy systems altogether
Training	• Expand existing learning opportunities that focus on RM concepts and methods by highlighting the need for ERM and the benefits of enterprise-wide solutions • Educate senior management. They may support records management, but not fully understand the complexities of an enterprise-wide ERM solution	• Concentrate on specific programs or systems at this juncture

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3.2 Determining Agency-unique Requirements for Enterprise-wide ERM Initiatives

Agencies differ in terms of cultures, business needs, and technology infrastructure. These differences account for unique RM requirements for enterprise-wide implementation of ERM systems that are not addressed in the DOD 5015.2-STD (v.2) standard, Design Criteria Standard for Electronic Records Management Applications (http://jitc.fhu.disa.mil/recmgt/index.html).[1] Agencies that have undertaken comprehensive requirements analyses prior to seeking an ERM solution had a clear road map for assessing the utility of COTS systems in their agencies and judging the amount of customization that would be required before deploying the system agency-wide. The ways in which they accomplished this are discussed in the following sections and summarized in **Figure 3**, The Do's and Don'ts of Determining Agency-unique Requirements for Enterprise-wide ERM, below.

Strategy. If the goal of your ERM system is to identify and capture records within the document creation and workflow processes, a review of existing business processes, and the development of a plan for improving those processes as the ERM solution is explored, is necessary. Conceptualizing the full process as it exists—understanding the workflow and the importance of content management—is crucial to enterprise-wide search and retrieval capabilities. Requirements should not be limited to 'recordkeeping'

needs; "they are integral to the business process itself… Focus first on business needs and records that support them; then focus on technology."[2]

Taking "a business process perspective ties discussions of records management issues to work that is critical to an organization… Not every group needs to be involved in the entire process, but each needs to participate actively at the appropriate points so that all user needs are identified and incorporated into the system design."[3]

Develop the business case for enterprise-wide ERM by clearly defining the ERM project objectives. For example, "Deploy ERMS to more efficiently and effectively manage Agency's records & process incoming licensing actions." The scope of your ERM initiative should be supportive of its purpose and it is important to stick to that scope as the project proceeds. In terms of scope, identify the:

- Various types of agency-specific records (record formats)
- Stakeholders with potential requirements. Project managers warn that there are conflicts of opinion and priority amongst IT, records managers, senior executives, and programs.
- Sensitive information to be included in the system (restricted access)
- Existing systems that create or store electronic records.

Organization. Organizations have records and organizationally unique Information Resources Management (IRM) policies that support paper records. Some agencies have organizationally unique Records Management (RM) policies to address a limited set of electronic records (e.g., e-mail). Any ERM solution should be required to support those provisions.[4]

Leadership. This is a good time to begin garnering support for the ERM initiative from among senior managers. This will give your project greater visibility and lend it credibility within the agency.

Technology. Any ERM system must fit within the existing infrastructure and the organization must incorporate ERM into the enterprise architecture. Identify unique agency infrastructure or architecture that could result in unique requirements for the ERM system. In addition to DOD 5015.2-STD (v.2), consult evolving ERM standards.[5]

Training. Use training opportunities to begin preparing the agency for change. At this stage, highlight risks of ignoring electronic records (noting applicable laws and regulations) which will be remedied by implementing the ERM solution.

Figure 3. The Do's and Don'ts of Determining Agency-unique Requirements for Enterprise-wide ERM

	Do	Don't
Strategy	• Develop the business case for your enterprise-wide ERM project • Clearly define the ERM project objectives • Make sure that the scope of your ERM initiative is supportive of its purpose • Focus on the users' ability to access the information they need to do their jobs	• Sway from your project's scope as defined at this stage of the project • Expect that your ERM system will be able to meet all the requirements uncovered during your

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	rather than emphasizing the ideal repository that is to be created	analysis
Organization	• Analyze and streamline business processes before seeking a technical solution • Involve as many departments, programs, and functions in the process as possible. This ensures the unearthing of existing ERM system requirements and provides an opportunity to raise awareness concerning records management, in general, throughout the agency. • Distinguish between wants and needs	• Consider any ERM solution that does not support those organizationally-unique provisions you uncovered during the requirements analysis • Ignore how the chosen solution will affect workflow and established business processes
Leadership	• Research the capabilities of today's ERM technologies • Identify key partners for your ERM project (i.e., those that are reliant on authentic records, influential within the agency, and whose missions complement that of RM). • Begin to identify senior managers as sponsors and business line champions who are likely participants for your pilot.	• Be insensitive to the needs of users. Display a degree of flexibility as you move toward COTS evaluation. • Over-commit: Be realistic about what you can and cannot deliver
Technology	• Understand the existing infrastructure and enterprise architecture in which the ERM solution must operate • Research evolving standards for ERM • Take into account likely changes in enterprise architecture and agency infrastructure	• Ignore technology in-place • Expect that one system can address all of the requirements uncovered during your analysis
Training	• Begin preparing the agency for change by highlighting the risks of ignoring electronic records into training opportunities	• Assume that staff understands the basics of records management and their importance to the agency

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3.3 COTS Evaluation

Identifying a Commercial Off-the-Shelf (COTS) system that meets an organization's enterprise-wide ERM needs can be a daunting task. In approaching this challenge, it can be helpful to understand how other organizations have tackled this effort, the challenges they have faced, and the innovative solutions devised to meet those challenges. The Information Technology Resources Board (ITRB)[6] can provide valuable feedback to agencies planning an enterprise-wide ERM project assisting in the development of evaluation criteria. The following sections describe how project managers have addressed specific challenges in selecting a COTS system. The Do's and Don'ts of COTS Evaluation for ERM are summarized in **Figure 4**, which follows.

Strategy. Performance measures should be developed for the ERM solution, recognizing that they will likely be revised as the project progresses. Aligning ERM performance outcomes with your agency's mission, goals, and business strategies, and quantifying benefits derived from ERM provide benchmarks on which to base management decisions and measure success.

Organization. Agencies that view their ERM as a partnership—with sponsors, senior management, target user groups/stakeholders, information technology departments, records managers, and vendors—are likely to have a smoother course from initiation through implementation. Involving people, keeping them informed about the progress being made, and training them to be good records managers encourages them to use the new ERM system.

Leadership. All teams require leadership, sponsorship, and management to succeed. An enterprise-wide solution has a better chance for success if there is an executive-level business line championing the project. Motivators are needed, particularly from the ranks of senior management; coaches on the project team help colleagues and stakeholders learn how to use ERM systems to their advantage.

Technology. The overall business need, rather than the technological features of a COTS product, should drive the selection of a vendor partnership. Rather than seek a "total solution" for ERM projects, agencies are advised to integrate the best functional components. If the software cannot support stakeholder requirements, the COTS product will require substantial customization, leading to delays in implementation and costs that exceed original projections.

Training. Begin to introduce the mechanics of ERM into records management training at this stage. Those involved in the requirements analysis and COTS evaluation will now be ready to receive information about how ERM will change the way they do their work.

Figure 4. The Do's and Don'ts of COTS Evaluation for ERM

	Do	Don't
Strategy	• Evaluate the spectrum of options and present a detailed analysis of the most cost-effective and risk averse solution • Focus first on business needs and records that support them, then on technology [7] • Focus Return on Investment (ROI) on tangibles, such as steps removed from a process or minutes saved retrieving a document	• Make the development process overly complicated. Taking a phased approach to deployment will limit the number and magnitude of errors.
Organization	• Adopt standardized file plans and naming conventions • Develop and implement a communications and marketing plan for ERM that addresses how ERM supports and facilitates your agency's mission and its business	

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	objectives, providing a clear understanding of the scope of the project and its desired outcomes	
Leadership	• Inspire users with the opportunities ERM solutions present	
Technology	• Select an ERM solution that is easy to use, that can be installed with a minimal amount of customization or changes to existing infrastructure, and is easy to deploy (particularly if offices lack sufficient IT support) • Focus on system functionality before choosing specific technologies[8] • Establish performance standards, incorporating them into specifications[9] • Prepare specifications that will require vendors to continue to support and maintain their products[10] • Ensure that data taxonomy, metadata standards, and a partition of content in relevant collections are developed and implemented • Obtain commitments from vendor to remain involved through agency-wide deployment • Be realistic about costs and savings	• Seek a "total solution" or select a system based on its features rather than as a solution for the business needs of your agency staff • Ignore standards • Ignore realities of support, particularly in non-headquarters locations. Develop plans to compensate for areas where little technical support is available. • Ask a vendor if their product is capable of performing a particular task. Rather, ask the vendor to demonstrate exactly how the product performs the task, analyzing the demonstration from the perspective of the typical user. • Expect promises of product improvement by the vendor to be delivered on-time • Ignore hidden costs for items not specified as included in vendor agreements
Training	• Introduce the mechanics of ERM into records management training, highlighting some of the features present in all systems	• Train on a specific system until one has been approved and tested

3.4 Governance Structure

By using appropriate governance structures, project managers increase the likelihood that their ERM system will operate efficiently and be fully integrated with agency architecture and infrastructure. The establishment of cross-functional teams from all critical business functions, in addition to records managers and IT personnel, characterizes all successful governance structures. These groups must adopt an enterprise view in order to operate and this extends to the ERM application.

Certain factors are associated with successful IT governance and this, in turn, results in successful enterprise-wide IT projects such as ERM. These factors include:

- Having executive leaders who are champions of IT and who emphasize its value in achieving the states' mission

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- Using a participative management style that emphasizes collaboration and communication
- Establishing incentives rather than mandating cross-agency collaboration
- Displaying a commitment to employees during periods of change. Retraining and redeploying personnel, giving them opportunities to learn new skills and assume new roles, allays fears and engenders employees' support for new initiatives.
- Employing a modular approach when developing and implementing IT initiatives.

Federal agencies that have established a governance structure for their ERM projects have identified several key elements that must be present for the structure to provide its intended outcome. These include a strong project management officer (PMO), a multi-tiered governance structure, optimal composition of the committees, and the use of small workgroups. These elements are discussed in the following sections and summarized in **Figure 5**, The Do's and Don'ts of Governance Structure for ERM Projects.

Strategy. Technology projects require detailed planning for the structure of the project, scheduling, budgets, implementation, project controls, and a determination of forces that might hinder the project, whether internal to the project/agency or external to it. A strong governance structure provides a framework for excellence, focusing on quality and the ability to sustain excellence through the lifecycle of the project, from initial discussions through implementation enterprise-wide.

Organization. The nature of the governance structure, with individuals from many departments and locations, encourages collaboration that extends beyond the ERM project itself. Collaborative efforts will help project managers (and others responsible for ERM) gain the trust and cooperation of staff who are being asked to adopt new procedures for dealing with records they create.

Leadership. ERM projects are more easily completed if there are champions among the management who relate the value of ERM to achieving the agency's mission.

Technology. Records management skills and IT skills are as important to the success of ERM projects as is an understanding of the business need driving the initiative and the business processes affected by the ERM installation.

Training for the new ERM tool is an opportunity to refresh staff's understanding of the importance of records management to the agency. A well-trained staff is more apt to follow procedures as a matter of course. Individuals who are unsure of how to use the system (and why) are less likely to employ the system correctly.

Figure 5. The Do's and Don'ts of Governance Structure for ERM Projects

	Do	Don't
Strategy	• Use the governance structures already in place at your agency for ERM projects before establishing any new committees • Ensure that senior-level	• Forget to modify records policies and management practices changed to accommodate introduction of ERM • Fail to continually reassess progress

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	management is aware of and involved in addressing change management issues[11] • Modify performance plans and goals to stress elements that appear they will promote participation in and enthusiasm about the project	and resource needs
Organization	• Use governance mechanisms to address tensions between central (headquarters) and local control of ERM • Establish an executive steering group made up of major stakeholders who have the power to fund the project. Involve legal counsel on records technology projects. • Involve key functional, technical, and contract personnel in the various committees established to govern your ERM project • Hold regularly scheduled meetings, particularly during the pilot phase • Convene smaller, ad hoc work groups with individuals possessing appropriate skills to address specific issues that arise • Formalize governance structures for ongoing collaboration and decision-making • Employ collaborative tools and techniques among the members of the various teams and groups established to implement ERM and communicate information concerning the project to the entire agency • Assign an individual who has the skills and can dedicate the appropriate amount of time to project communication[12]	• Underestimate the need for qualified staffing of the project or the time/resource commitment required for successful implementation of ERM. Having an experienced pilot project leader is particularly important to its success.
Leadership	• Incorporate key stakeholders from programs, headquarters, and other offices • Establish a Program Management Office (PMO)	• Ignore the concerns of individuals from located a distance from headquarters

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	responsible for the introduction of the agency-wide ERM project and associated business process change • Determine resource requirements for an ERM pilot and full-scale deployment. Revise estimates for agency-wide deployment costs as the pilot progresses.	
Technology	• Ensure that records management and technical skills are represented on each committee	• Ignore how the ERM project fits into the range of IT projects planned or underway at your agency
Training	• Educate senior management as to the need to commit to change, adjust priorities, and actively participate in agency's ERM initiative • Train project team on their roles and responsibilities	• Assume that team members possess project management skills. Provide PM training, as appropriate, including an emphasis on collaborative work group skills.

3.5 Developing and Implementing an ERM Proof of Concept Pilot

A pilot project provides agency staff with experience using an ERM system and, barring a poor evaluation, results in approval to go ahead with full implementation. Pilots provide insight to address enterprise-wide challenges, offering opportunities to improve business processes. Agencies conducting an ERM pilot reduce their investment risk. The following sections provide the strategies employed by project managers in executing successful ERM pilot projects. Their knowledge is summarized in **Figure 6**, The Do's and Don'ts of ERM Pilot Projects, below.

Strategy. Select pilot participants from among groups (departments or programs) that have a genuine stake in the success of the project. Individuals on your team should be open to the changes that are in store for themselves and the agency.

Incremental rollout of a pilot allows project teams to manage the process effectively. That way, your project team can take what it learns from one phase and apply it to the next, avoiding unnecessary delays and costs. A phased approach also helps with evaluation measures, limiting the number of metrics to be gathered at any one time.

Do not allow the pilot project to drag on too long. A simple pilot project that can be implemented without major difficulties requires at least three months to conduct, but pre-planning activities, including training, and post-pilot evaluation makes a six-month timeframe for an ERM pilot desirable.

Organization. Keep ERM pilot projects simple. Don't try to test more variables than a pilot project can handle well. Slowly increase the number of departments or programs involved in the pilot, as well as the number and formats of records, thoroughly testing the functionality of the ERM system.

ERM project managers recommend designating a Point of Contact (POC) or SuperUser within each group selected to participate in the pilot. The POC can keep the pilot project

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team aware of what is going on with the users (and apprise users of decisions made by the pilot project team).

Staff reacts differently to change. While users want to be involved in policy decisions, they do not want to have to constantly think about ERM. Limit the number of decisions staff need to make when creating and declaring a record. Simplify file plans, simplify and automate organizational forms, use templates, and consider rule-based auto-categorization to minimize daily decision-making. "No single auto categorization tool currently available will address every requirement; 100 percent successful implementation of currently available auto-categorization technology 'Right Out of the Box' is highly unlikely."[13]

Individuals need to see the difference that ERM makes in their daily routine tasks, but this takes time. Usage of the software grows through the peer pressure associated with business process improvements. Individuals must see advantages in their own work if the implementation effort is to succeed.[14]

Leadership. Management support for the project influences the degree to which staff will utilize the system: While there may be strong support from senior management for ERM, there must be specific "continuing and visible support from the top for this particular pilot project during the trial period."[15]

Technology. Lessons learned with regard to technology are based on State of Michigan Department of History, Arts and Libraries (2002) *Records management application pilot project: Final report for National Historical Publications and Records Commission grant #2000-059*, pp. 17-18.

1. Use thin client architecture. This allows IT staff to deploy the software quickly and easily, with no need to customize the desktop.
2. Avoid macros and integrations with other desktop software. These are unreliable, and desktop software applications change frequently. Each new version will threaten the connectivity of the macro or integration.
3. Integrate the product at the operating system level. Operating systems upgrade to new versions slower than desktop applications, and there are fewer to integrate.
4. Client-server architecture is difficult to deploy. Develop a robust Web-based product that works the same way a client server version of the product would work.
5. Make the ERM software appear invisible to the user. Allow the ERM server and file plan to look like another local drive and directory that the user accesses when saving and opening documents. Let the user perform the "save as" or "open" function, see the ERM drive, and navigate through their file plan to the desired file. This will boost user acceptance, and it reduce the amount of training required.
6. Be aware of how ERM software is integrated with document management software (EDMS). After users file their electronic documents into the EDMS, there does not appear to be an incentive for them to return to the document and officially "declare it a record." Unless the business process is tightly defined so it is not completed until that additional step is taken, users will not file their documents twice; and even if they do, they probably will not be happy about it, because it is cumbersome and requires thought.
7. Understand what the ERM system can and cannot do for you. For example, as the GAO report (2003) states, ERM systems are not designed to recognize when

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records become "contaminated" with classified (or commercially proprietary information).

Training. ERM software requires technical training that needs to be reinforced throughout the pilot and beyond. This makes training a substantial cost item. Use POCs to provide program, department, or location-specific training to users, reinforcing the general training provided for the ERM project. Use performance measure reports to determine elements of training that need to be highlighted/reinforced.

Figure 6. The Do's and Don'ts of ERM Pilot Projects

	Do	Don't
Strategy	• Adopt a phased approach to the entire project, including the pilot • Determine the information that is important to capture during your pilot and automate as much of the process for documenting this at the outset • Have a skeleton policy on system use in place before the pilot begins [16] • Work the plan, but restructure the pilot if the situation warrants • Adjust schedules as needed to ensure the quality and acceptance of work products • Conceptualize the full process while you conduct a limited implementation to test business outcomes and quantify benefits • Allow users to shape the software and associated procedures to the business processes and accommodate user-generated innovations into the system	• Allow the pilot project to go on too long • Ignore feedback from the pilot. Use it to refine new processes before large-scale deployment. • Think that the project ends (your job is done) upon deployment of the system
Organization	• Prepare staff for on-going refinement of the system • Pre-sell the system by relating benefits to everyday tasks/routine work of staff. Find incentives for use; disincentives for avoidance. • Document the decisions made during the pilot and use this information to shape full-scale implementation • Develop a mechanism to handle issues as they arise during the pilot phase • Create multiple methods for supporting participants in the pilot project (e.g., one-on-one training; help desk) • Clearly define responsibilities of pilot project	• Ignore the importance of communication. Use the pilot to test a variety of communication techniques (tools and message content) to "market" ERM

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	team members • Understand that things do not always work right the first time • Know that it will take time for staff to adjust to using a search engine as a retrieval tool instead of navigating file plans	
Leadership	• Team leaders should have participated in successful pilot projects in the past • Pay attention to small problems; otherwise, they may grow into big ones	• Ignore the results of your pilot's risk-benefit analysis in recommending agency-wide deployment • Overlook potential problems simply to keep the pilot on schedule
Technology	• Thoroughly test all systems prior to deployment. Sequential piloting of ERM—slowly adding programs or departments to the pilot—will allow teams to tweak the system before testing additional modules or functions. • Establish a set time for regular communication with the vendor to ensure issues are addressed in a timely fashion • Ensure that your pilot solution can scale up to handle agency-wide ERM needs • Provide both "pull" and "push" options for support to pilot project participants. Examples of "pull" items include loading user manuals and maintaining FAQs on an Intranet or Web site. Pilot project teams can be proactive in providing help ("push") through unsolicited calls to see if participants need further assistance. • Make sure that pilot project teams have a solid understanding about what the software can deliver and how it works, making certain that it functions properly during pre-pilot testing before involving users	
Training	• Follow-up introductory training sessions by individualized coaching at participant workstations. • Train users to recognize and cope with records that have become "contaminated" with classified (or commercially proprietary information) • Develop your POCs or Super Users by including them in training and testing of the	• Ignore differences in training preferences among staff. Employ multiple avenues to learning and provide assistance to pilot project participants.

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system before the formal pilot launch

4. Critical Components and Success Factors for ERM Implementation

Project managers of ERM initiatives point to specific elements that contribute to successful implementation. Above all else, the decision to implement ERM must be driven by the business needs of the agency and not viewed by management or staff as a separate activity. ERM projects will have an easier time meeting the goals of managing the lifecycle of electronic records, from creation through ultimate disposition, and agency-wide deployment of an ERM solution if they:

- Are realistic about the resources that the project will require (manpower and budget)
- Allot adequate time for thorough research, cultivation of stakeholder involvement, pilot testing, and change management
- Present a formal, detailed business case for the ERM project that provides the strategic rationale for the project; the risk/benefit and cost/benefit analyses necessary to make a strong economic case for proceeding; and the beginnings of a management plan for the project that:
    - Identifies critical success factors
    - Develops a strategy for managing identified risks
    - Deals not only with the implementation phase, but ongoing maintenance and development of the system in future.[17]
- Learn (and then address) the concerns of stakeholders, including record ownership/control. Know your stakeholders; understand and confirm their expectations.
- Appoint sufficient numbers of trained staff to the project team who possess a combination of technical (records and IT) and project management (PM) skills to ensure successful implementation and expected return on investment
- Review existing agency records policies and procedures, giving adequate attention to file plan/filing structure
- Compile information concerning the existing environment, creating the baseline against which post-ERM improvements will be measured
- Use a variety of approaches for the ERM implementation, including:
    - Pilot systems for early learning and avoidance of pitfalls
    - Enterprise-wide but phased rollout
    - Modular rollout (one business process at a time)
    - Incremental rollout (levels of functionality implemented in stages).[18]
- Create a detailed integration and/or migration strategy along with a clear plan for continuous improvement of both the system and processes related to ERM.

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5. Strategies for Minimizing Barriers to Agency-wide Implementation of ERM

ERM projects can encounter significant barriers preventing smooth implementation, organization-wide. The following impediments were cited most often as having slowed or stalled ERM projects at federal and state agencies:

1. Absence of necessary change management and business process improvement efforts
2. Lack of agency processes supporting distributed records and information management[19]
3. Lack of consistency within an agency as to how records are identified and maintained
4. Incomplete articulation of business requirements related to the full scope of the records lifecycle
5. Incomplete baseline, performance measures, and anticipated outcome statements for each module and project phase
6. Limited consensus among stakeholders about unifying and improving workflow and processes prior to implementing ERM
7. Lack of leadership and appropriate commitment from senior management in support of the ERM project
8. Lack of consistency in staffing project team, with members frequently reassigned to other projects/duties
9. Reorganization of agencies affecting the programs and departments involved.

Several agencies have employed effective means to overcome these challenges. They recommend the following:

1. Thoroughly plan your ERM project
2. Focus not only on securing the commitment of senior leaders, but also concentrate on obtaining stakeholder buy-in, zeroing-in on records-intensive processes of key departments/programs that are essential in supporting your agency's mission
3. Assign talented and competent staff to the project team who possess technical (IT) and information management (document and records managers) skills, as well as project management experience. For those who are new to project management, provide adequate training. At least one member of the team should have communications skills to assist with the development and execution of a marketing and communication plan for your ERM project.
4. Clarify timelines in advance and be honest when milestones are likely to be missed, explaining to management and users the reason for the delay
5. Find ways to minimize the burden on the system user
6. Purchase COTS products. Custom design is time-consuming and costly. Select a solution that is easy to acquire, modify, deploy, and use.
7. Ensure that your agency's infrastructure leads the application, and not the other way around

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8. Integrate ERM with other IT systems; make ERM appear as just another application on the desktop
9. Ensure pilot success before deploying the system agency-wide.

Figure 7 summarizes some of the more significant barriers and suggested means for resolving these difficulties.

Figure 7. Barriers to Agency-wide Implementation of ERM and Potential Solutions

Barriers to Agency-wide Implementation of ERM	Potential Solutions
Records management processes and procedures are not integrated into agency business processes	Integrate records and information management responsibilities and standards into work processes in order to capitalize on the combined available knowledge in the enterprise[20]
Systems have not been inventoried and processes remain undocumented	Inventory systems in place and document processes to create a baseline against which change can be measured once the ERM system is in place
Relatively high cost of enterprise-wide systems—not only to for the system but time to implement and maintain—making it easy for agencies to deploy resources elsewhere	Emphasize the need for enterprise-wide management of records and the difficulties encountered when multiple repositories exist within an agency
Quest for a single, perfect COTS product that meets all requirements means that the agency will never get beyond the evaluation stage	Seek the best solution for the business needs of your agency. Develop a modular strategy, integrating the best functional components today and remain flexible for modifications and future technology innovations.
Inadequate staffing, in terms of total numbers of individuals involved, time they have available to devote to the project, and skill sets they possess (records management, technical, and project management)	Consider employing contract workers for pieces of the project
Resistance to change and reluctance to use full-features of software. Users are frustrated when systems are too complex.	• Employ easy-to-use systems • Educate staff regarding the need to change • Acceptance can be improved by being responsive to requests for modification of the technology or process • Provide training and support that is customized for the way staff learns
Users are afraid of losing control (e.g., the	Acceptance can be improved by being responsive to requests for modification of the

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ability to add/remove files from the file plan)	technology or process
Users won't use the system until they see benefit; won't see benefit until they use the system	• As time progresses and team-based work groups become more prevalent, reluctant staff will have to use ERM to retrieve records generated by others and pertinent to their work • Emphasize the importance of records management with new hires at your agency so they begin work on the right footing

6. Summary

Deploying an enterprise-wide ERM system poses many challenges. It can be helpful to understand how other organizations have tackled this effort, the challenges they have faced, and the innovative solutions devised to meet those challenges. This guidance document reflects the combined knowledge acquired by project managers who have participated in various capacities in ERM projects. The approach you choose (for identifying enterprise-wide projects through the CPIC process, assessing system requirements, determining the most appropriate COTS product to acquire, thoroughly testing system functionality in a pilot, and managing the entire process within a formal governance structure) should seek to enhance users' everyday business use as well as satisfy agency records retention responsibilities. Lessons learned that were discussed in this guidance document have been summarized in **Figure 8**.

Figure 8. A Summary of Lessons Learned

General	Records management-specific
Secure top management leadership, endorsement, and support for your enterprise-wide ERM initiative	Simplify the file plan
Invest up-front business process reengineering and standardization	Consolidate the electronic filing function to reduce cost of software ownership, improve filing consistency, and reduce amount of training needed
Align project with management's expectations and organization's willingness to change	Minimize mapped data between document and records management software packages
Develop and deploy in modules	Ensure adequate records management reporting to perform dispositioning
Push back on unrealistic schedules that force bad decisions	
Ensure sufficient resources to develop underlying processes, policies and procedures	
Focus on acceptance testing	
Develop and implement a communications plan	
Develop role-specific training	
Ensure consistency of indexing	

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Contract directly with the software vendors	
Integrate ERM with other systems	
Take a phased approach to system rollout	

Appendix: Resources for Creating an ERM Lessons Learned Knowledge Center

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[6] The Information Technology Review Board (ITRB) is a group of senior IT, acquisition, and program managers with significant experience developing, acquiring, and managing information systems in the Federal Government. Members are drawn from a cross section of agencies and are selected for their specific skills and knowledge. The ITRB provides, at no cost to agencies,

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